

Pattern of orofacial injuries between the genders following interpersonal conflicts in Benin-City, Edo State, Nigeria

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ABSTRACT

Objectives: To study and compare the causes and presentations of orofacial trauma, seen in an urban specialist center, between males and females.

Method: A prospective study of trauma cases that presented to the maxillofacial clinic between January 2014 and May 2019. Data collected were gender, age, reason for injury, method of injury and clinical presentation of hard and soft tissues. A descriptive analysis of data was done and results presented as frequency tables and bar charts.

Conclusion: This comparative study showed that more females presented to the clinic with soft and hard tissue injuries than males. Altercations, were relationship- based in females and was due to other factors in men. Blows accounted for causes of injury in males, while slap was a more common cause of injury in females

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Keywords: Orofacial trauma, reason, clinical presentations

Introduction

The prominence of the face predisposes it to frequent injury both from intentional and unintentional causes (Leathers *et al.*, 2003). Road traffic crashes or accidents has been reported as the major cause of maxillofacial injuries in developing countries including Nigeria (Adeyemo *et al.*, 2005; Etetafia and Odai, 2014). Other common injury mechanisms include falls, assaults and interpersonal violence, sports injuries, gunshots and blasts, animal attacks and work-related injuries such as industrial accidents (Alsop and Kennett 2002; Neumann and Erikson, 2006;

Citation: Osaghae IP, Eriamiator CO, Inanoremhe L (2019): Pattern of orofacial injuries between the genders following interpersonal conflicts in Benin-City, Edo State, Nigeria; 2(1&2):43-50.

Assault/ Interpersonal violence was reported to be the second most common cause of facial injuries in a meta- analysis of oral and maxillofacial injuries carried by Adeyemo *et al.*, in 2005. Interpersonal violence can occur in the home setting between intimate partners or outside the home setting (Magennis *et al.*, 1998). Intimate partner violence refers to behavior in an intimate relationship that causes physical, sexual or psychological harm, including physical aggression, sexual coercion, psychological abuse and controlling behaviours (King *et al.*, 2002). The psychological impact and the potential for inflicting more severe damage makes the mouth and facial area a prime target in cases of violence and abuse (Leathers *et al.*, 2003). In Nigeria, an increase in the number of assault-related maxillofacial injuries could be attributed to the poor socioeconomic conditions of the country

leading to stress and propensity to crime (Adeyemo *et al.*). These injuries are often associated with morbidity and varying degrees of physical, functional and aesthetic damage (Alvi, Doherty and Lewen, 2003; Brasileiro and Passeri, 2006). Treatment aims to repair the face's natural bony architecture and to leave as little apparent trace of the injury as possible (Seyfer and Hansen 2003). Skeletal and soft tissue injuries of the face constitute quite a significant portion of the workload of the oral and maxillofacial surgeons in Nigeria (Ugboko, Odusanya and Fagade 1998).

Previous work done on orofacial injuries in Nigeria (Adeyemo *et al.*, 2005), other parts of Africa (Majambo *et al.*, 2013) and advanced societies (Magennis *et al.*, 1998), have focused on injury characteristics from intentional and unintentional causes. However, the literature is deficient in comparing the characteristics of intentional orofacial trauma in males and females. The aim of this article therefore, is to compare the age at presentation; reason for trauma; method of inflicting that trauma; clinical presentation of the hard and soft tissue trauma in both males and females



Figure 3: Facial bone fracture



Figure 4: Machete wound



figure 5: Avulsed lip tissue



Figure 6: Avulsed tooth



Figure 7: Bullet entry wounds

Method:

Design and population: This was a prospective study of trauma cases due to interpersonal violence of patients of all ages that presented to the maxillofacial clinic of Central hospital Benin from January 2014 to May 2019. Some were referred from the Police Unit of the hospital while others visited on their own.

Data collection: Data collected were for gender, age, reason for injury, method of injury and clinical presentation of hard and soft tissues trauma. Diagnosis of soft and hard tissues injury were made from clinical examination and imaging. Imaging techniques included peri-apical radiographs, plain radiographs and computerized tomography (CT) scan. Clinical Photographs were taken for

assessment and monitoring of progress. Consent was obtained from patients before their photographs were taken, all patients that presented, consented to the study protocols.

Data analysis

A descriptive analysis of data was done and findings presented as frequency tables and percentages on SPSS version 17.

Results

Gender: A total of 68 patients presented to the clinic with injuries sustained from intentional violence. Males were 49% (33), while females were 51% (35). Figure 1 illustrates the gender distribution.

Age: Age range for males was 15-65 (mean: 31) years. The 10-19 years age group and the 20-29 years age group were highest at 24% each.

The age range for females was 10-54 (mean: 33) years. The 30-39 years age group recorded the highest frequency with a percentage of 37% followed by the 20-29 years age group at 34%. The 60-69 years age group was not represented (table 1).

Reason for trauma: table 2 illustrates the different reason for trauma given by the patients as compared between males and females. Domestic violence accounted for 34.3% of the leading cause of violence in females while arguments that escalated into fights at 36.4% was main reason in males.

Method of injury: table 3 shows the different methods injury was inflicted on the male and female patients. 43% of females admitted to receiving slaps as the major method of violence while for males it was chiefly through blows in 76%.

Presentation of hard tissues injuries in males and females: Figure 2 gives an overview of the

percentage presentation of hard and soft tissue in males and females in comparison.

Clinical presentation was either absent, Single or in combination of hard tissue injuries.

Table 4 compares the clinical presentation of hard tissue injuries in males and females. A total of 79% (26) of the male patients presented with 39 hard tissue injuries. Avulsion of tooth/teeth accounted for 38% (15) followed by subluxation of teeth in 18% (7) patients. None of the male patients presented with concussion of the tooth.

In females, a total of 91% (32) presented with 45 hard tissue injuries. Avulsion of tooth/teeth also accounted for 38% (17) followed by subluxation of teeth in 20% (9) of patients. None of the female patients presented with split tooth.

Presentation of soft tissue injuries in males and females: (table 5)

Clinical presentation of soft tissue injuries was also either absent in patients under review, occurring singly or in combination.

64% (21) of males presented with 23 soft tissue injuries. Laceration made up the most expressed clinical presentation at 48% (11) of soft tissue injuries in males followed by abrasions in 22% (5).

Soft tissue injuries were present in 77% (27) of the female patients. Abrasions and bruises accounted for 29% (10) each followed by laceration and ecchymosis at 14% (5) each.

91% (62) of the total patients laid a complaint with the police. 52% (32) were females and 48% (30) males.

Table 1: Age Range of males and females

Age Range (in years)	Frequency/	Percent
	Males	Females
10 – 19	8 (24)	2 (6)
20 – 29	8 (24)	12 (34)
30 – 39	9 (27)	13 (37)
40 – 49	5 (15)	5 (14)
50 – 59	2 (6)	

Table 2: Frequencies for Reason of intentional trauma

Reason	Frequency/ Percent	
	Males	Females
Domestic violence (Spouse battering)	0 (0)	12 (34)
Child battering	1 (3)	2 (6)
Cultism (gang wars)	6(18)	0 (0)
Refused advances	0(0)	6 (17)
Rivalry		
Relationship	0(0)	4 (12)
Business	3(9)	2 (6)
Land issues/boundary disputes	5(15)	0 (0)
Robbery attacks	3 (9)	3 (9)
Arguments escalating into fisticuffs	12(36)	6 (17)
Fights after traffic accidents	3 (9)	0 (0)

Table 3: Frequencies for Source of trauma

Method	Frequency/ Percent	
	Males	Females
Matchet	2 (6)	0 (0)
Gunshot	2(6)	0 (0)
Head to head	1(3)	2 (6)
Blows	25(76)	8 (23)
Shoved	1(3)	1 (3)
Slapped	0(0)	15(43)
Bite/scratch/hair pulling	0(0)	6 (17)
Hit with an object	2 (6)	3 (9)

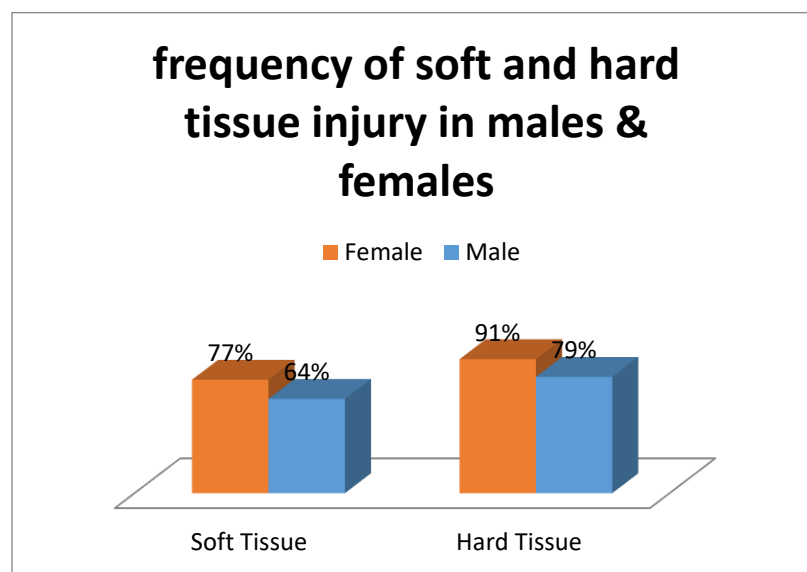


Figure 2: Hard and soft tissue injuries compared in males and females

Table 4: Frequencies of Presentation of hard tissues injuries in males and females

Presentation	Frequency (Percent)	
	Male (n=39)	Female (n=45)
Dentoalveolar fracture	5 (13)	8 (18)
Fracture of facial bone	4 (10)	4 (9)
Avulsed teeth	15 (38)	17 (38)
Subluxation	7 (18)	9 (20)
Ellis fracture	1 (3)	1 (2)
Crown/root fracture	5 (13)	4 (9)
Concussion	0(0)	2 (4)
Split tooth	2 (6)	0 (0)
Total	39 (100)	45 (100)

Table 5: Frequencies of presentation of soft tissue injuries in males and females

Soft tissue injury	Frequency/ Percent	
	Males (n=23)	Females (n=35)
Laceration	11 (48)	5 (14)
Abrasion	5 (22)	10 (29)
Erosion	0(0)	2 (6)
Bite marks	0(0)	1 (3)
Avulsion	1 (4)	1 (3)
Bruises	1 (4)	10 (29)
Ecchymosis	1 (4)	5 (14)
Bullet entry/exit wounds	2 (9)	0(0)
Temporomandibular joint pain	2 (9)	1 (3)
Total	23 (100)	35 (100)

Discussion

Oral and maxillofacial injuries refer to injuries of the orofacial soft tissues, facial skeleton, teeth and associated specialized soft tissues within the head and neck region as a result of wounding or external violence (Timothy, 2005).

A total of 68 patients participated in this study. It was noted that more females (51%) presented to the clinic with injury from intentional trauma in this study. This contrasts sharply with a study by Magennis *et al.*, in 1998 where they observed that four times more males than females sustained facial injuries due to assault. In another related study, it was three to 1 (76% men and 24% females) was observed (Olojede *et al.*, 2016). The fact that

orofacial injury involves an anatomical region that largely defines perception of self-image and identity could explain why more women presented with facial injuries (Bronheim, Strain and Biller, 1991).

The age range for patients in this study was 15 to 65 years while another study carried out western Nigeria recorded 16 to 48 years (Olojede *et al.*, 2016). More males (27% each) were observed to be in their second and third decades of life. This is similar to findings in other studies (Magennis *et al.*, 1998; Majambo *et al.*, 2013). This is because propensity for violence is more common in this age groups.

More females (37%) were found in the in the older age group of 30-39 years compared to male. And this may mark the period of initial decline of attractive

feminine outlook, provoking some kind of dislike and aggravating aggression from males who were initially attracted and intimate with these females. A study on injuries in women by Grisso et al., in 1996, found that 54% of women were in the age bracket of 25-40 years (Grisso et al., 1996).

It has been observed that violence against women was a third more likely to be reported by third parties to the police regardless of the gender of the attacker; although the most likely to be reported gender combination was a male perpetrator and a female victim.¹³

In men, arguments escalating to fistcuffs accounted for a higher percentage (36%) of the causes of injury in this study. Arguments from trivial issues has been observed by Goetz in 2010 to lead to acts of violence and homicide. Domestic violence or intimate partner (IPV) violence accounted for higher causes of orofacial trauma reported by women. In this study 63% of the cases of trauma in females was intimate partner-based, which is similar to the finding by Grisso et al., in 1996. In the study by Grisso and coworkers, the assailant was a husband or a boyfriend in 60% of the cases. There is a deep cultural belief in Nigeria that it is socially acceptable to hit a woman to discipline a spouse (Daily trust, 2013; Standard 2013). None of the males in this study presented with trauma from IPV. IPV against men is generally less recognized by society than IPV against women, which can act as an inhibition to men reporting this (Shamita, 2002; Government of Canada, 2004). Determining the rate of IPV against men can be difficult as male victims may face socio-cultural issues such as judgements by male peers or having their masculinity questioned (Government of Canada, 2004). Slaps accounted for 43% as the cause of orofacial injuries in females in this study. This is in keeping with the report of Project Alert on Violence Against Women in 2001. It was stated in this report that the most common forms of physical violence against women include rape, murder, slapping, shoving, punching and kicking (Project Alert on Violence Against Women, 2001).

In males, blows accounted for 76% of the causes of injury. Blunt assaults, blows from fists or objects, are a common cause of facial injury (Shapiro *et al.*, 2001).

Trauma to the orofacial region can result in soft tissue injuries which include abrasions, lacerations, avulsions, bruises and cold injuries (Jordan and Calhaun, 2006). Lacerations accounted for 52% of the soft tissue injuries in men. There is a significant degree of sex variation with a general male tendency in laceration resulting from assaults (88.3%) in a study on laceration by Bolt and Watts in 2004.

Bite wounds was found only in females in this study (3%), which contrast with the study by another author who found bite wounds in one male (Olojede et al. 2016). Furthermore, Olojede and coworkers observed that victims of violence like assault and gunshot are more likely to suffer mandibular and angle fractures. In their study, Olojede et al., in 2016 found 38% of fractures which contrasts with this study where avulsion of teeth was more than fractures. This is likely due to the degree of aggression and well as object of assault and direction of force application.

Medical literature suggests that early repair of facial injuries, within hours or days, results in better outcomes for function and appearance (Percy 2008). A dressing can be placed over wounds to keep them clean and to facilitate healing, and antibiotics may be used in cases where infection is likely (Neumann and Eriksson, 2006). Injuries resulting from bites carry a high risk of infection. People with contaminated wounds who have not been immunized against tetanus within 5 years should be given a tetanus vaccination (Jordan and Caihaun 2006). Laceration may require stitches to stop bleeding and facilitate wound healing with as little scarring as possible (Neumann and Eriksson, 2006). Fractures may be repaired from metal screws and plates commonly made from titanium (Seyer and Hansen, 2003).

Conclusion:

The prominence of the face predisposes it to frequent injury from both intentional and unintentional causes. This comparative study showed that more females presented to the clinic with soft and hard tissue injuries than males. Altercations, were relationship- based in females and was due to other factors in men. Blows accounted for causes of injury in males, while slap was a more common cause of injury in females.

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